

The Successful Transfer of Space Derived Convergent Spray Technology (TM): An Application for Industrial Roof Coatings and Interstate Bridge Repair

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The NASA MSFC Technology Transfer Office has Eight Mission Areas:

- Technology Deployment Partnerships
- Technology Development Partnerships
- Small Business Innovation Research and Small Business Technology Transfer Research
- Facilities Commercialization
- New Technology Reporting
- National, Regional and Local Strategic Alliances
- Technology and Software Commercialization
- Technology Education and Outreach Projects

Note: The two subject projects were Technology Deployment Partnerships

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Introduction:

A Technology Deployment Partnership was formed among NASA's Marshall Space Flight Center (MSFC), the Environmental Protection Agency (EPA), and United Technologies USBI Company to develop, demonstrate, and evaluate a technology that uses a solvent-less spray process for depositing a lightweight, highly filled roof coating on low sloped commercial roofs.

A second partnership was formed among MSFC, the Federal Highway Administration, Alabama Department of Transportation, and USBI Company for the purpose of developing and demonstrating the Convergent Spray Technology (TM) as a method of applying a skid resistant coating to interstate roads and concrete bridge decking. Again, different materials and coatings were evaluated and tested before the final selection of ground flint and resin were demonstrated on Interstate 65 near Huntsville, AL and the Mobile Bankhead Tunnel.

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Purpose:

Although the levels of volatile organic compound (VOC) emissions from industrial roof coatings and paint operations have been reduced in recent years, the roof coating partnership was an effort to further reduce VOC emission levels and to also demonstrate the use of reclaimed automobile tire rubber as a filler material in roof coating systems. Different materials and coatings were evaluated and tested before the final selection was used to coat the roofs of two small buildings at NASA's MSFC during fiscal year 1997.

The primary objective of the Bridge repair partnership was to strategically leverage public and private sector funds for the purpose of developing a bridge repair process that was cheaper, better, and faster than conventional methods. It was also, imperative that this process be environmentally friendly and capable of performing under extreme conditions for a period of not less than 2 years.

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The roof coating project successfully leveraged the investment of NASA, EPA, and private sector resources to demonstrate a pre-commercial roof coating process. The process utilized the Convergent Spray Technologies (TM) process, which was initially developed by USBI to apply highly filled, thermal protection coatings to the Space Shuttle Solid Rocket Boosters.

The bridge repair partnership afforded a cheaper, better, faster method of applying a skid resistant coating to bridge deckings and interstate roads. The project successfully leveraged the investment of NASA, Federal Highway Administration, the Alabama Department of Transportation, and private sector funding. December of 1998 will mark the end of a two year evaluation period that the Department of Transportation will be assessing the coating's performance. Once certified, the coating and process could revolutionize the way road surfaces are repaired throughout the country.











